

Firm Reaction to Geopolitical Crises: Evidence from the Russia-Ukraine Conflict

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Abstract

This paper investigates corporate announcements related to the Russia-Ukraine conflict of S&P 500 firms. We find that firms withdrawing from Russia or suspending operations tend to have more cash reserves. Similarly, firms with more cash seem to announce withdrawals or suspensions relatively quickly. This seems to suggest that cash reserves seem to matter in how firms react to geopolitical events. We do not find that cash appears to matter when firms announce that they will be donating to various causes due to the conflict. However, higher cash levels do seem to speed up the timing of this type of announcement. When we investigate investor reactions to either donation or withdrawal/suspension announcements, we report raw returns surrounding the announcements are negative, between -0.6 to 0.9%. Moreover, cash levels seem to matter for withdrawals/suspensions but not for donations. Our paper confirms that cash levels (i.e., financial flexibility) are an essential determinant of how firms react to geopolitical events.

Key Words: Russia-Ukraine war, cash, financial flexibility, geopolitical crises

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Introduction

With the war in Ukraine, levels of geopolitical risk have risen to levels not seen since the Gulf War. While difficult to quantify, the economic consequences are estimated to be substantial. In May 2022, the Federal Reserve estimated a drag of 1.7% of global output. Many papers have tried to estimate the economic effects of the Ukraine war using various stock market indices. For example, Ahmed, Hasan, and Kamal (2022) investigate several European stock market indices surrounding the start of the crisis. While these studies are interesting and provide insights into the anticipated economic effects at the beginning of global crises, important issues are overlooked. How do firms react to these crises? When do they react? And how do investors respond to these reactions?

Using the war in Ukraine as an experimental setting, we investigate the reaction of firms and their investors. Using this crisis has essential benefits. First, the number of companies affected is significant. This is evidenced by the fact that many companies have changed their operations since the start of the crisis. More than 1,000 companies have made it public that they are voluntarily reducing operations in Russia (to some degree) over the minimum level required by international sanctions. However, some companies have continued to operate in Russia undeterred. Combined, this provides a sizeable heterogeneous sample of firms with varied responses. The second benefit is that this crisis is one of the first where firms had to make decisions and adopt policies under the bright lights of public opinion, exacerbated by social media.

Our examination is important for several reasons. First, our paper completes, to some extent, the existing literature by not investigating the start of the crisis (i.e., the invasion of

Ukraine) but by focusing on how companies deal with this particular crisis. Hence, the paper paints a more complete picture of the economic effects of the Ukraine crisis. Second, our paper adds to the burgeoning literature that examines firm crisis management. Most of this literature focuses on firm-specific crises. Our paper investigates firm responses to geopolitical crises. This literature is vast, but no event of this scale has occurred since the Gulf War. Third, foreshadowing our results, our paper adds to the literature that suggests that cash matters. Again, extensive literature investigates cash as it can be used quickly in crises, essentially as an instrument providing reserves and flexibility.

So in our paper, we use a sample of crisis responses of big U.S. firms. Specifically, we investigate our sample firms' reactions to the Ukraine crisis. Perusing many news stories and firm filings, we find that of our 441 sample firms that survive our data screens, 132 either suspended operations in Russia or withdrew from Russia. A second substantial set of firms, 92 to be precise, donate to various Ukraine-related causes. Presumably, the rest did not alter operation nor donated.

Interestingly, 102 firms continued operations as prior. Then, when we attempt to identify which firm factors seem to be related to these decisions, we find that suspending or withdrawing is positively associated with the cash levels of these firms before the crisis. Hence, it appears that cash-rich firms are most likely to take action. When we investigate the determinants of donating, we find that only size loads statistically significant in our regressions. Interestingly, when we look at the timing of the announcements of withdrawal/suspension and donating, we report that cash-rich firms announce to withdraw or suspend relatively fast. This is also the case for firms that announce donations.

Finally, in the last step of our analyses, we investigate the stock price reaction to the responses of these firms. The stock price reacts negatively to suspending/withdrawing and

donating, and withdrawing. The negative stock price appears to be economically significant, somewhere between minus 0.8% and minus 0.9%. When we relate these stock price reactions to firm-level characteristics, we again find that cash holdings are statically associated. To be specific, they are negatively related to the responses. In other words, cash-rich firms are more likely to exhibit negative stock price returns surrounding the withdrawal, suspension, and donations announcement.

Overall, our findings seem to indicate that firm characteristics matter when dealing with geopolitical crises. Precisely, cash matters. Moreover, these reactions predictably matter to investors. The rest of our paper contains the following sections. The following section (section 2) reviews some of the relevant literature. Section 3 then describes our sample collection and data. Then, section 4 describes our methodology, followed by our results in section 5. Finally, section 6 summarizes and concludes our paper.

2. Literature Review

2.1 Crisis

Extant literature examining links between political uncertainty and financial market performance shows that fear of political instability has a significant negative impact on stock market returns (Dimic, Orlov, and Piljak 2015; Gemmill 1992; Jones and Banning 2008; Kapar and Buigut 2020; Li and Born 2006; Nippani and Medlin 2002). For example, Berkman, Jacobsen, and Lee (2011) show the explanatory power of political crises for both the mean and the volatility of stock market returns. Studying the data from 49 emerging nations, Lehkonen and Heimonen (2015) find an inverse relationship between political risk and stock market returns. Guidolin and

Ferrara (2010) find that the U.S. market reacts positively at the beginning of conflicts. They also show that international conflicts impact the stock market more than internal ones.

Related to more recent major political events, Smales (2017) demonstrates a significant positive relationship between political risk and financial market uncertainty. While examining the political disputes between China and Taiwan, He, Nielsson, and Wang (2017) find that political tension causes a significant decline in the stock market return. Kapar and Buigut (2020) investigate the impact of diplomatic and economic blockades on Qatar and find that diplomatic and economic uncertainty significantly impact stock market volatility in Qatar. In a recent study, Bash and Alsaifi (2019) demonstrate that the disappearance of a critical political person in Saudi Arabia negatively influences the Saudi Stock Exchange's stock returns.

There are also papers investigating the economic consequences of geopolitical risk on financial and capital markets (Caldara and Iacoviello 2022). Rigobon and Sack (2005) show that geopolitical risk negatively affects equity returns and bond spreads. Choi (2022) also finds an adverse impact of geopolitical risk on the volatility of stock market returns. Salisu, Lasisi, and Tchankam (2022) show that geopolitical threats negatively impact equity returns more than actual geopolitical acts. Contessi, De Pace, and Guidolin (2014) find that pairwise correlations between yield spreads are significantly altered during the financial crisis as spreads comove with one another more strongly than in normal times. Guidolin and Tam (2013) show that bond risk premia increase during a financial crisis, and the shock that causes it to depart from its normal levels has long-term effects.

Ahmed, Hasan, and Kamal (2022) say that the nature of the ongoing Russia–Ukraine war is unique. In several important aspects, it differs remarkably from the previous political upheavals and uncertainty, such as the Gulf War, the Iraq War, and the Russian annexation of Crimea.

Though the Russia- Ukraine war is centered in Europe, it has caused economic uncertainty and shaken the global economy. Caldara and Iacoviello (2022) show that the geopolitical threat peaked after the Russian invasion of Ukraine. Also, there are rising concerns about slower economic growth and faster inflation worldwide as the war is likely to impair financial intermediation and trade. For these reasons, the impact of the Russia-Ukraine war is considerably broader and deeper than the impact of previous political upheavals.

Based on an investigation on stock market reaction of 66 countries, Federle, Meier, Müller, and Sehn (2022) find that proximity to Ukraine leads to lower market returns. Bounou and Yatié (2022) show that there are negative abnormal returns examining stock data from 94 countries, and Yousaf, Patel and Yaroyaya (2022) document that Asian and European share markets are impacted negatively by the Russia-Ukraine war.

Deng, Leippold, Wagner, and Wang (2022) focus on ESG and Russia-Ukraine war but did not find significant evidence whether ESG ratings provide a consistent predictor of firm resilience in the event of a crisis. Rigobon and Sack (2005) find that the volatility of stock prices is significantly influenced by the risk of war. While Sonnenfeld, Tian, Zaslavsky, Bhansali, and Vakil (2022) say that it is beneficial to leave Russia, Glamboosky and Peterburgsky (2022) find that firms withdrawing operations from Russia face the highest negative abnormal returns.

2.2 Cash

Keynes (1937) opines that firms often hold cash to meet specific needs such as transactions, precautions against uncertainty, and speculation. Myers (1984) and Myers and Majluf (1984) say that firms need some financial slack if they want to avail all investment opportunities with positive

net present values (NPV). Phan, Nguyen, Nguyen, and Hegde (2019) show a positive relationship between policy uncertainty and firm cash holdings due to firms' precautionary motives.

In a different view, Jensen (1986) suggests that excessive cash holdings could cause agency problems because managers can use internal financing to avoid being monitored by stock markets. Therefore, firms with excess cash could be engaged in suboptimal investments.

Dittmar, Mahrt-Smith, and Servaes (2003) show that firms often hold higher cash levels if there is weak investor protection. Also, Kalcheva and Lins (2007) show a negative relation between firm value and the level of cash holdings in countries with weak investor protection.

While investigating the role of cash from a corporate governance perspective, Ozkan and Ozkan (2004) find that managerial ownership causes excessive cash holdings. Farinha, Mateus and Soares (2018) find that firms hold more cash when earnings quality is low. Lee and Powell (2011) show that the marginal value of higher cash holdings declines as capital markets punish excessive cash holdings. Tran (2020) finds managers often exploit shareholders through corporate liquidity policy during a financial crisis.

3. Sample Collection and Data

3.1 Sample

Our sample consists of S&P 500 index firms as of February 20, 2022. We construct a comprehensive dataset by gathering information on corporate announcements, pre-war Russia-Ukraine-related disclosures, and various stock market and financial variables for these S&P 500 firms. To ensure a robust analysis, we employ a multi-pronged data collection strategy to identify relevant corporate announcements made between February 24, 2022, and July 31, 2022, related to

suspending business operations in Russia or donating to Ukraine. Our approach includes the following steps: First, we conduct extensive searches across multiple data sources, such as Access Newspaper Archive, Barron's, Bloomberg Businessweek Archive, Business Source Complete, Economist, Gale Business: Insights Global, Gale General OneFile, Gale OneFile: News, NewspaperARCHIVE.com, Nexis Uni, ProQuest Recent Newspapers, ThomasNet, and Factiva, to gather information on corporate announcements. Second, we examine pre- and post-war annual and quarterly filings, corporate websites, and social media announcements to collect information on firms' exposure to Russia-Ukraine-related activities and their decisions to suspend operations or provide support to Ukraine. Finally, we utilize the Yale School of Management (SOM) list (Sonnenfeld et al., 2022) to identify other firms that may have taken similar actions in response to the conflict.

Although we recognize the possibility of overlooking firms with relatively small Russian activities, our comprehensive approach seeks to minimize this risk. Additionally, we obtain daily stock return data from the CRSP database and financial statement items from the Compustat database to further enhance our analysis.

We construct two indicator variables based on a firm's corporate announcements regarding the Russia-Ukraine conflict. The suspension dummy assumes a value of one if a firm suspends or withdraws its operations in Russia and/or Ukraine and zero otherwise. The donation dummy assumes a value of one if a firm donates to Ukraine and zero otherwise.

Figure 1 displays the descriptive statistics for our sample firms that announced decisions to suspend business operations in Russia. Most suspension announcements occur during the first three weeks after the war starts. However, we do find that some firms waited until June 2022.

[Figure 1 here]

Figure 2 presents the descriptive statistics for our sample firms that announced decisions to donate to Ukraine. Most of these donation announcements are concentrated in March 2022. The latest announcement occurs in late May of that year.

[Figure 2 here]

3.2 Data

To examine the predictability of firm characteristics on different corporate announcements, we include the following firm characteristics in our study: Cash Holdings, measured as the sum of cash and short-term investments divided by total assets. Firm Size, measured as the natural logarithm of total assets. ROA (Return on Assets), which is calculated as the ratio of net income to total assets. Market Leverage, measured as total debt divided by the sum of total debt and the market value of equity. Current Ratio, calculated as current assets divided by current liabilities. And Market-to-Book Ratio is measured as the market value of equity divided by the book value of equity. We also employ the two-digit industry codes of the twelve industries as classified by Fama and French. All variables are defined in the appendix.

Our sample is limited to S&P 500 companies that announced their intent to suspend operations from Russia or make donations to Ukraine and have complete financial data available. The final sample consists of 441 firms in total. Among them, 132 firms announced the suspension

of operations in Russia, while 92 firms announced donations to support Ukraine. There is a slight overlap between the two subsamples of firms.

Table 1 reports summary statistics for the variables used in the analysis. In Panel A for the full sample, the mean of the suspension dummy is 0.299, while that of the donation dummy is 0.209. Suggesting that there is a fairly large amount of sample firms that do announce either of the two categories. The typical S&P 500 firm in our sample has an average total asset of about \$50 billion and a cash holdings ratio of 12.3%. Panels B and C report the descriptive statistics for firms announcing decisions to suspend business operations in Russia and donate to Ukraine, respectively. While there appear to be some differences between the two samples, they do not appear to be very different.

[Table 1 here]

Table 2 presents the pairwise correlations between suspension, donation dummies, and firm characteristics. The suspension dummy is negatively associated with the donation dummy. This is not surprising as there is very little overlap between the two samples. Cash holdings are positively associated with suspensions, while firm size is positively associated with donations.

[Table 2 here]

4. Methodology

In this study, we aim to examine the predictability of firm characteristics on different corporate announcements related to the Russia-Ukraine conflict. We employ probit regressions

that utilize firm characteristics described in the previous section, to predict corporate suspension decisions to achieve this objective. Our regression model is specified as follows:

Announcement

$$\begin{aligned} &= \alpha + \beta_1 \text{Firm Size} + \beta_2 \text{Market to Book} + \beta_3 \text{ROA} \\ &+ \beta_4 \text{Market Leverage} + \beta_5 \text{Current Ratio} \\ &+ \beta_6 \text{Cash Holdings} + \gamma \text{Industry dummies} + \varepsilon \end{aligned} \tag{1}$$

where *Announcement* is an indicator variable equal to 1 if the firm made a corporate decision related to the suspension of operations in Russia or donation to Ukraine, and 0 otherwise. The firm characteristics variables include the log of total assets, market-to-book equity ratio, return on assets, market leverage ratio, current ratio, cash holdings, and industry dummies, as defined earlier in the text. ε is the standard error term.

To further investigate the relationship between firm characteristics and the timing of corporate decisions, we modify Equation (1) by replacing the dependent variable with the natural logarithm of one plus the difference between the date a firm made a corporate decision to suspend operations in Russia or donate to Ukraine and February 24, 2022. This allows us to examine how firm characteristics may influence the speed at which companies react to the conflict.

Our robustness analysis assesses the impact of different firm characteristics on investor reactions to various corporate announcements. To do so, we regress firms' cumulative abnormal returns (CAR) over a five-day window centered on the corporate announcements against the firm characteristics used in Equation (1). This analysis is conducted for two subsamples of firms, one

for suspension announcements and the second one for donation announcements, to determine the differential effects of these corporate decisions on stock market performance.

5. Empirical Results

5.1 Main Results

We commence our empirical analysis by exploring which firm characteristics predict different corporate announcements (i.e., Suspension and Donation) by examining the marginal effect of each firm characteristic in a probit regression. Table 3 reports the results from Equation (1), with the dependent variable being the suspension dummy. Column (1) does not include industry fixed effects, while Column (2) does.

The estimated return coefficients on assets are negative ($\beta = -0.023$ and -0.026) and statistically significant (t-stat = -2.08 and -2.38), implying firms with relatively poor performance are less likely to suspend their operations in Russia. The estimated coefficients of the current ratio are also negative ($\beta = -0.244$ and -0.251) and statistically significant (t-stat = -2.92 and -2.94), suggesting that a company struggling to meet its short-term obligations is less likely to suspend its operations in Russia.

Conversely, the estimated coefficients of cash holdings are positive ($\beta = 0.034$ and 0.032) and statistically significant (t-stat = 4.92 and 4.49). The results suggest that firms with higher cash holdings are more likely to make different corporate announcements related to the Russia-Ukraine conflict, highlighting the importance of financial flexibility in making such decisions.

[Table 3 Here]

Table 4 presents the probit regression results from Equation (1), with the dependent variable being the donation dummy. In Column (1), the specification without industry fixed effects, the estimated coefficients of log total assets are 0.185 and 0.224, with statistical significance at the 1% level. The results suggest that larger firms are more likely to donate to Ukraine. The estimated coefficients of other firm characteristics are statistically insignificant. These estimated coefficients' magnitude and statistical significance are confirmed in Column (2), the specification with industry fixed effects.

[Table 4 Here]

Next, we investigate the correlation between firms' decisions on when they made the corporate announcements and their firm characteristics. Table 5 reports the results of OLS regressions that link firm characteristics to how long a firm took to make corporate suspension announcements. The dependent variable is $\log [1 + (\text{announcement for suspension day} - \text{February 24, 2022})]$.

The estimated coefficients of log total assets are -0.247 and -0.277, with statistical significance at the 1% level. The estimated coefficients of market leverage are -0.016 and -0.019, with statistical significance at the 1% and 5% levels, respectively. The estimated coefficients of cash holdings are -0.023 and -0.018, with statistical significance at the 1% and 5% levels, respectively. Taken together, the results suggest that firms with greater financial flexibility are more likely to make timely decisions regarding suspensions.

[Table 5 here]

Table 6 reports the correlation between firms' donation decisions to Ukraine and their firm characteristics. The estimated coefficients of total assets are -0.125 and -0.152, with statistical significance at the 5% and 1% levels, respectively. The estimated coefficients of cash holdings are -0.023 and -0.018, with statistical significance at the 1% and 10% levels, respectively.

[Table 6 here]

Overall, we find that firm characteristics significantly predict different corporate announcements related to the Russia-Ukraine conflict. Firms with poor performance or struggling to meet short-term obligations are less likely to suspend operations in Russia. In contrast, firms with higher cash holdings are more likely to make suspension and donation decisions, emphasizing the importance of financial flexibility. Larger firms are found to be more likely to donate to Ukraine. Furthermore, we observe that firms with greater financial flexibility tend to make timely decisions regarding suspensions. These findings provide valuable insights into the role of financial flexibility and firm characteristics in corporate decision-making during geopolitical crises.

We now focus on the stock market reaction to corporate announcements (i.e., Suspension and Donation). Table 7 analyzes the relationship between Cumulative Abnormal Return (CAR) in a 5-day window (CAR [-2,2]) and firm characteristics, considering subsamples of firms with the two types of corporate announcements. For suspension firms in Columns (1) and (2), the estimated coefficients of market leverage and cash holdings are negative and statistically significant at the 5% or 10% level. These results suggest that the market perceives firms with higher market leverage

and cash holdings as more vulnerable to the impact of suspending operations in Russia, leading to negative abnormal returns around the announcement date.

The estimated coefficient of market leverage and cash holdings for the donation to Ukraine subsample is negative but statistically insignificant, indicating that the market reaction to donation announcements is relatively neutral.

[Table 7 Here]

6. Conclusion

This paper examined the relationship between firm characteristics and corporate announcements related to the Russia-Ukraine conflict. A relatively large percentage of S&P 500 firms announced actions after the start of the conflict. We find that suspending or withdrawing is positively associated with the cash levels of these firms prior to the crisis. This suggests that cash-rich firms are most likely to take this action. Looking at donations, we find that only size seems to matter. When we investigate the timing of the announcements of withdrawal/suspension and donating, we find that cash-rich firms announce to withdraw or suspend relatively fast. This is also the case for firms that announce donations.

Finally, when we investigate the stock price reaction to the responses of these firms we find that investors react negatively to suspending/withdrawing and donating, as well as withdrawing. The negative stock price is between minus 0.8% and minus 0.9%. Relating these stock price reactions to firm-level characteristics, we again find that cash holdings are statically negatively associated.

Overall, this study contributes to understanding how firm characteristics influence corporate decision-making during geopolitical turmoil and how the market perceives and reacts to such decisions. Our findings have practical implications for corporate managers, investors, and policymakers, as they underscore the importance of financial flexibility and strategic communication in navigating complex and uncertain geopolitical environments.

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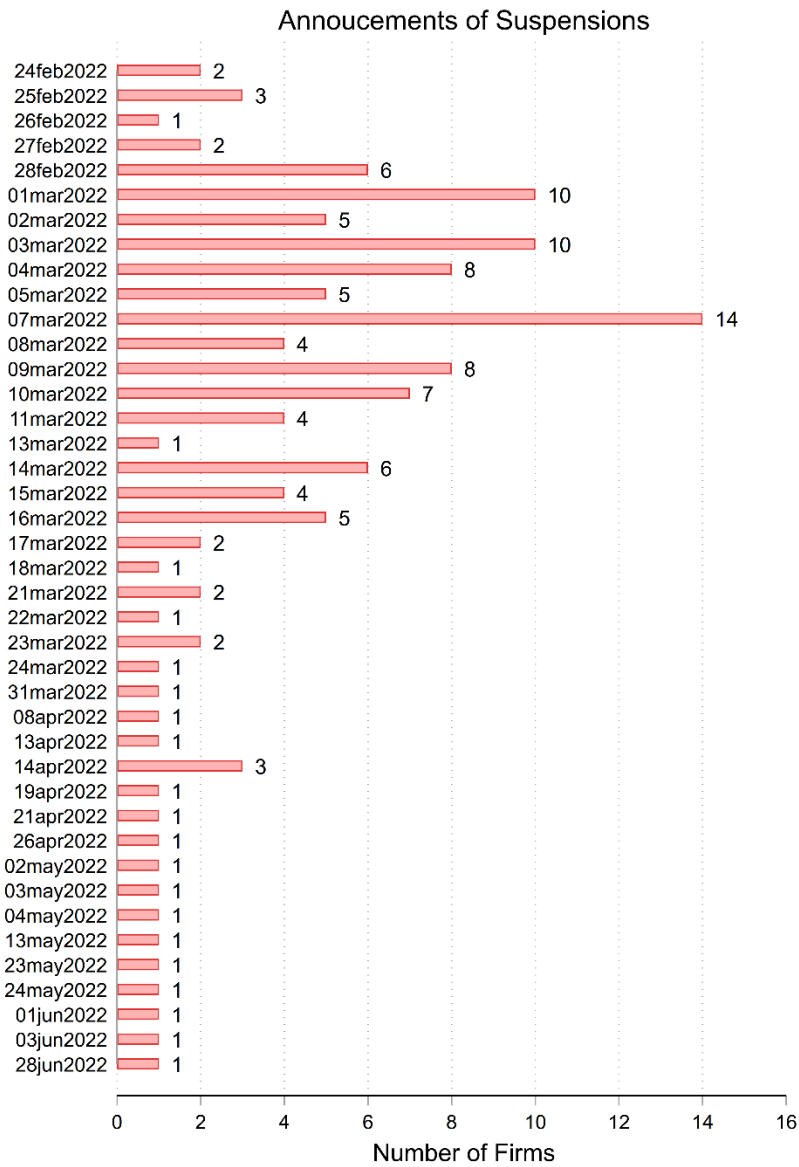


Figure 1: Announcements of Suspensions

Note: This figure displays descriptive statistics for our sample firms that announced decisions to suspend business operations in Russia.

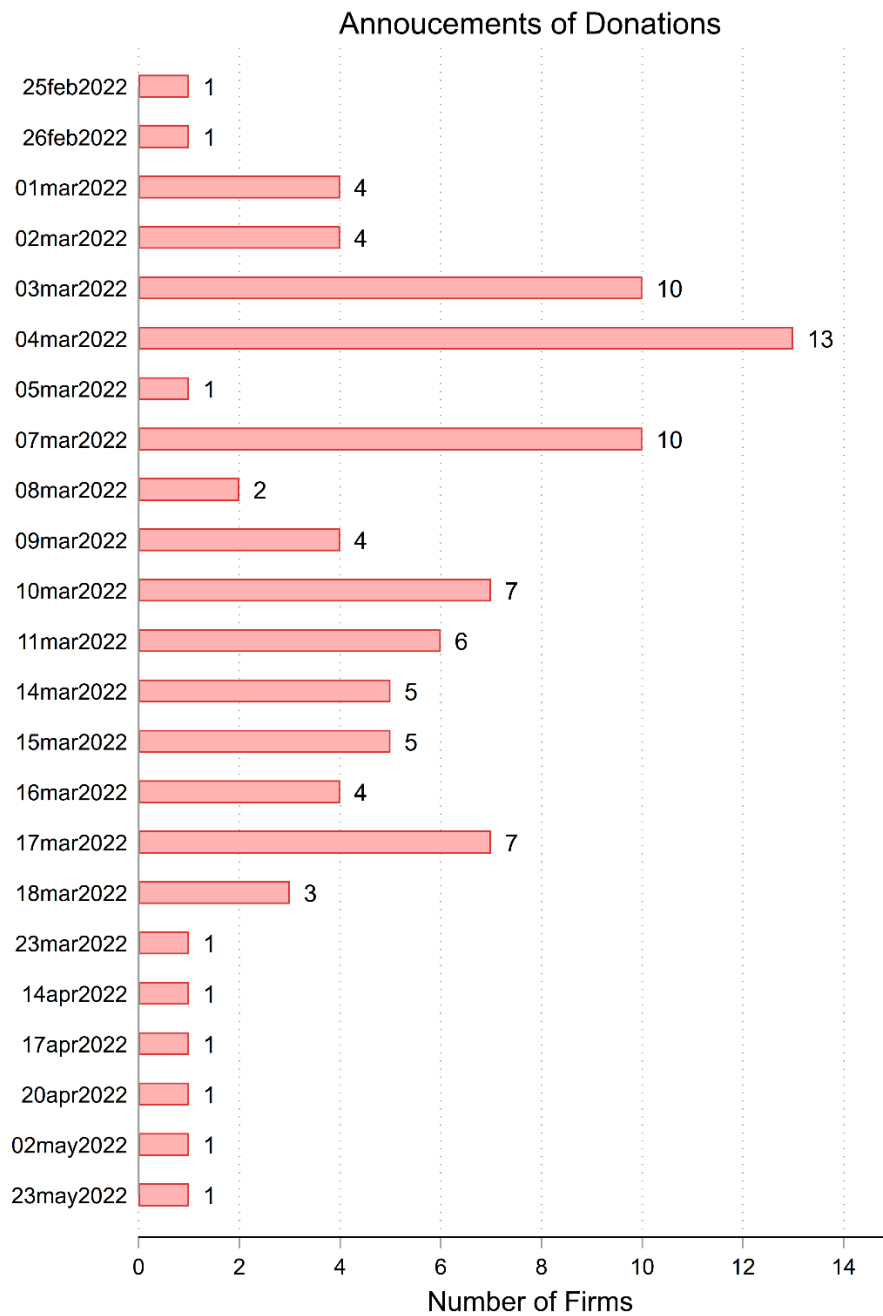


Figure 2: Announcements of Donation

Note: This figure displays descriptive statistics for our sample firms that announced decisions to make donation to Ukraine.

Table 1: Summary Statistics of Firm Characteristics*Panel A: Full sample*

Variables	Mean	Median	Std.Dev	Min	Max	N
Suspension	0.299	0.000	0.458	0.000	1.000	441
Donation	0.209	0.000	0.407	0.000	1.000	441
Total Assets (\$Billion)	50.159	23.710	73.290	1.981	551.622	441
Cash Holdings (%)	12.263	9.006	11.357	0.116	47.996	441
ROA (%)	8.385	7.214	6.531	-6.031	31.484	441
Market Leverage (%)	16.313	13.851	12.025	0.227	53.663	441
Current Ratio	1.643	1.376	0.983	0.490	5.892	441
Market-to-Book	7.326	4.583	7.501	0.750	38.131	441

Panel B: Firms suspended operations in Russia

Variables	Mean	Median	Std.Dev	Min	Max	N
Total Assets (\$Billion)	57.960	26.743	82.244	2.225	420.549	132
Cash Holdings (%)	15.254	12.800	11.647	0.532	47.996	132
ROA (%)	8.410	7.766	6.401	-6.031	31.484	132
Market Leverage (%)	14.793	11.662	12.346	0.324	53.663	132
Current Ratio	1.633	1.369	0.938	0.494	5.892	132
Market-to-Book	8.129	5.043	7.992	0.750	38.131	132

Panel C: Firms donated to Ukraine

Variables	Mean	Median	Std.Dev	Min	Max	N
Total Assets (\$Billion)	68.566	30.204	87.958	3.474	420.549	92
Cash Holdings (%)	12.332	10.755	9.340	0.371	42.377	92
ROA (%)	8.494	7.857	6.307	-6.031	31.484	92
Market Leverage (%)	16.737	14.253	12.174	0.227	53.663	92
Current Ratio	1.540	1.369	0.841	0.490	5.208	92
Market-to-Book	7.064	4.228	7.521	0.750	38.131	92

Note: This table displays descriptive statistics for our sample firms, categorized by corporate announcements related to the Russia-Ukraine war. Panel A covers the entire S&P 500 sample, while Panels B and C focus on firms announcing decisions to suspend business operations in Russia, and donate to Ukraine, respectively. Statistics include mean, median, standard deviation, minimum and maximum values for each variable, with continuous variables winsorized at the 1st and 99th percentiles. Variable definitions are in the appendix.

Table 2: Correlation of Firm Characteristics

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Suspension	1.000							
(2) Donation	-0.336***	1.000						
(3) Total Assets	0.070	0.129***	1.000					
(4) Cash Holdings	0.172***	0.003	0.014	1.000				
(5) ROA	0.003	0.009	-0.023	0.407***	1.000			
(6) Market Leverage	-0.083*	0.018	0.123***	-0.392***	-0.579***	1.000		
(7) Current Ratio	-0.007	-0.054	-0.191***	0.634***	0.412***	-0.404***	1.000	
(8) Market-to-Book	0.070	-0.018	-0.040	0.243***	0.365***	-0.375***	0.070	1.000

Note: This table presents the pairwise correlation between suspension, donation dummies, and firm characteristics. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 3: Suspension Decision and Firm Characteristics

Variables	(1)	(2)
	Suspension Dummy	
Log Total Assets	0.062 (1.17)	0.093* (1.72)
Market-to-Book	0.003 (0.37)	0.004 (0.45)
ROA	-0.023** (-2.08)	-0.026** (-2.38)
Market Leverage	-0.013** (-2.03)	-0.004 (-0.61)
Current Ratio	-0.244*** (-2.92)	-0.251*** (-2.94)
Cash Holdings	0.034*** (4.92)	0.032*** (4.49)
Constant	-0.812 (-1.40)	-1.183** (-2.02)
Observations	441	411
Industry FE	NO	YES
Pseudo R2	0.052	0.108

Note: This table presents the results of probit regressions that utilize firm characteristics to predict corporate suspension decisions. The dependent variable is the suspension indicator variable, which takes the value of one if a firm has made a corporate decision to suspend operations in Russia. Firm characteristics are employed as independent variables. Variables are defined in the appendix. Standard errors were corrected for the clustering of residuals at the firm level. Robust z-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 4: Donation Decision and Firm Characteristics

Variables	(1)	(2)
	Donation Dummy	
Log Total Assets	0.185*** (3.43)	0.224*** (3.89)
Market-to-Book	-0.005 (-0.58)	-0.004 (-0.45)
ROA	0.008 (0.79)	0.007 (0.62)
Market Leverage	-0.003 (-0.47)	0.001 (0.12)
Current Ratio	-0.076 (-0.81)	-0.096 (-0.96)
Cash Holdings	0.004 (0.60)	0.002 (0.37)
Constant	-2.620*** (-4.25)	-2.589*** (-4.00)
Observations	441	411
Industry FE	NO	YES
Pseudo R2	0.025	0.049

Note: This table presents the results of probit regressions that utilize firm characteristics to predict corporate donation decisions. The dependent variable is the donation indicator variable, which takes the value of one if a firm has made a corporate decision to donate to Ukraine. Firm characteristics are employed as independent variables. Variables are defined in the appendix. Standard errors were corrected for the clustering of residuals at the firm level. Robust z-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5: Suspension Date and Firm Characteristics

Variables	(1)	(2)
	Log Suspension Date Minus War Began Date	
Log Total Assets	-0.247*** (-4.41)	-0.277*** (-4.69)
Market-to-Book	0.003 (0.28)	0.005 (0.40)
ROA	-0.008 (-0.41)	-0.013 (-0.75)
Market Leverage	-0.016*** (-2.69)	-0.019** (-2.42)
Current Ratio	0.041 (0.50)	0.002 (0.03)
Cash Holdings	-0.023*** (-3.77)	-0.018** (-2.55)
Constant	5.698*** (9.22)	6.008*** (8.88)
Observations	132	132
Industry FE	NO	YES
R2	0.243	0.383

Note: This table presents the results of OLS regressions that connect firm characteristics to how long a firm made corporate suspension announcements. The dependent variable is the natural logarithm of one plus the difference between the date that a firm has made a corporate decision to suspend operations in Russia and February 24, 2022. Firm characteristics are employed as independent variables. Variables are defined in the appendix. Standard errors were corrected for the clustering of residuals at the firm level. Robust *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6: Donation Date and Firm Characteristics

Variables	(1)	(2)
	Log Donation Date Minus War Began Date	
Log Total Assets	-0.125** (-2.50)	-0.152*** (-2.72)
Market-to-Book	-0.002 (-0.20)	0.005 (0.62)
ROA	0.018* (1.87)	0.008 (0.90)
Market Leverage	-0.004 (-0.67)	-0.002 (-0.27)
Current Ratio	0.088 (1.20)	0.059 (0.76)
Cash Holdings	-0.023*** (-2.74)	-0.018* (-1.98)
Constant	3.990*** (6.67)	4.053*** (6.77)
Observations	92	92
Industry FE	NO	YES
R2	0.199	0.310

Note: This table presents the results of OLS regressions that connect firm characteristics to how long a firm made corporate donation announcements. The dependent variable is the natural logarithm of one plus the difference between the date that a firm has made a corporate decision to donate to Ukraine and February 24, 2022. Firm characteristics are employed as independent variables. Variables are defined in the appendix. Standard errors were corrected for the clustering of residuals at the firm level. Robust *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7: Stock Market Reaction to Corporate Announcements on the Russia-Ukraine War

	(1)	(2)	(3)	(4)
	Cumulative Abnormal Return [-2, 2]			
Variables	Suspension Firms		Donation Firms	
Log Total Assets	0.275 (0.71)	-0.012 (-0.03)	0.617 (1.11)	0.362 (0.73)
Market-to-Book	-0.084 (-1.27)	-0.095 (-1.25)	-0.002 (-0.02)	0.008 (0.10)
ROA	0.127 (1.58)	0.127 (1.54)	0.150 (1.28)	0.134 (1.47)
Market Leverage	-0.111** (-2.05)	-0.136** (-2.26)	-0.018 (-0.23)	0.029 (0.31)
Current Ratio	0.626 (1.18)	0.393 (0.71)	0.015 (0.02)	-0.160 (-0.20)
Cash Holdings	-0.129** (-2.33)	-0.114* (-1.93)	-0.139 (-1.32)	-0.117 (-1.19)
Constant	-1.376 (-0.35)	1.266 (0.28)	-6.521 (-1.10)	-8.152 (-1.62)
Observations	126	126	89	89
Industry FE	NO	YES	NO	YES
R2	0.132	0.205	0.075	0.205

Note: This table presents the results of OLS regressions using a subsample of firms that made corporate decisions to suspend operations in Russia, or donate to Ukraine, respectively. The dependent variable is the cumulative abnormal return of a firm's stock on two dates before and after the announcement date (CAR [-2,2]). Firm characteristics are employed as independent variables. Variables are defined in the appendix. Standard errors were corrected for the clustering of residuals at the firm level. Robust *t*-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Appendix: Variable Definitions

Variable	Definition
Suspension dummy	A dummy variable taking the value of one if a firm has suspended or withdrawn its operation in Russia and/or Ukraine.
Donation dummy	A dummy variable taking the value of one if a firm has made donation to Ukraine.
Cash Holdings	the sum of cash and short-term investments divided by total assets.
Cash Holdings - Alt	the sum of cash and short-term investments divided by the net assets (difference of total assets and cash & short-term investment).
Firm Size	the natural logarithm of total assets.
ROA	the ratio of net income to total assets.
Market leverage	total debt divided by the sum of total debt and market value of equity.
Current Ratio	Current assets divided by current liabilities.
Market-to-Book Ratio	the market value of equity divided by the book value of equity.
Industry Dummies	the 12 industries classified by Fama and French.
CAR(-2, 2)	CAR (-2, 2) is the cumulative abnormal return over the five-day window centered on the corporate announcement date. abnormal return is defined as a stock's daily return minus the S&P 500 weighted average stock return.
